

REMARKS/ARGUMENTS

In connection with parent Application Serial No. 10/178,854, the undersigned and Examiner Vanore reached an agreement during a telephone conversation on February 11, 2004 regarding amending independent claims 22, 23 and 25-27 to clearly place the entire application in condition for allowance. In order to further the prosecution of the parent application and to obtain early patent protection on the subject matter set forth in many of the other claims in the application, it was agreed that the Examiner would amend these independent claims to introduce a time of flight mass analyzer therein.


At the same time, the filing of this continuation application was discussed with the Examiner. It is respectfully submitted none of the prior art discloses or suggests a mass spectrometer including an ion tunnel ion trap at all analogous to that set forth in accordance with the present invention. More particularly, with respect to the subject matter of independent claim 22, the claim requires two or more axial potential wells formed along the length of the ion tunnel ion trap. It is respectfully submitted that there is no prior art specifically disclosing an ion tunnel ion trap corresponding to the present invention, let alone one having wells analogous to that claimed. Independent claim 23 requires the ion tunnel ion trap to include a particular segmented arrangement, with each segment comprising at least four electrodes having substantially similar sized apertures. Particular limitations of the claim also set forth the DC potential of the electrodes, as well as AC or RF voltage supplied thereto. None of the known prior art is seen to have any corresponding structure. Independent claim 25 has corresponding limitations to the wells as claim 22. With respect to independent claim 26, this claim requires that the ion tunnel ion trap operate in a particular mode of operation wherein a V-shaped, W-shaped, U-shaped, sinusoidal, curved, stepped or linear axial DC potential profile is maintained along at least a portion of the ion tunnel ion trap. Finally, with respect to independent claim 27, this claim recites the presence of a potential barrier which separates a downstream portion of the ion tunnel ion trap from an upstream portion thereof. The downstream portion of the ion tunnel must store and periodically release ions, while the upstream portion of the ion tunnel ion trap continues to receive ions. Therefore, two

separate regions are established between the ion tunnel ion trap wherein one region continues to receive ions and the other region traps and then periodically releases the ions. This structure is simply not found in the prior art or record.

Additional dependent claims 38-46 have been added to the application, with these claims corresponding to limitations previously submitted in the parent application in claims 3, 5 or 19, although dependent upon different independent claims. Therefore, these claims set forth a new scope of patent protection based on the overall combinations presented.

Based on the comments presented above and the teachings in the prior art cited in the parent application, which prior art is hereby made of record in a suitable Information Disclosure Statement, it is respectfully submitted that all the claims in this application are allowable over the known prior art. In any case, following entry of this Preliminary Amendment, examination of the application is respectfully requested.

Respectfully submitted,



Everett G. Diederiks, Jr.
Attorney for Applicant
Reg. No. 33,323

Date: April 22, 2004
DIEDERIKS & WHITELAW, PLC
12471 Dillingham Square, #301
Woodbridge, VA 22192
Tel: (703) 583-8300
Fax: (703) 583-8301